



## No. Target file Definition

Match% Over. INIT OPT

2 SmW\_H\_ORF.aa

90.6 776 529 3616

	10	20	30	40	50	60
SmW_R_AA	MLARAERPRPGPRPPVFPPPLSLLLLAISAPVCGRVPRSPRTSLP SEADSYLT					
	: . . . . . : . . . . . : . . . . . : . . . . . : . . . . . : . . . . .					
SmW_H_ORF.aa	MPASAARPRPGPGOPTASPF——PLLLAVLSGPVSGRVPRSPRTSLP SEADSLT					
	10	20	30	40	50	
	70	80	90	100	110	120
SmW_R_AA	RFAASHTYNYSALLVDPASHTLYVGARDSIFALTLPFSGERPRRIDWMPETHRQNGRKK					
	: . . . . . : . . . . . : . . . . . : . . . . . : . . . . . : . . . . .					
SmW_H_ORF.aa	RFAVPHTYNYSVLLVDPASHTLYVGARDTIFALSFPFSGERPRRIDWMPPEAHRQNGRKK					
	60	70	80	90	100	110
	130	140	150	160	170	180
SmW_R_AA	GKKEDCHNFQILAIVNASHLLTCGTAFDPKCGVIDVSSFQQVERLESGRGKCPFEPA					
	: . . . . . : . . . . . : . . . . . : . . . . . : . . . . . : . . . . .					
SmW_H_ORF.aa	GKKEDCHNFVQILAIVNASHLLTCGTAFDPKCGVIDVSRFQQVERLESGRGKCPFEPA					
	120	130	140	150	160	170
	190	200	210	220	230	240
SmW_R_AA	QRSAAVMAGGVLYTATVKNFLGTEPIISRAVGRADWIRTELTSSNLNAPAFVAANVLSP					
	: . . . . . : . . . . . : . . . . . : . . . . . : . . . . . : . . . . .					
SmW_H_ORF.aa	QRSAAVMAGGVLYAATVKNYLGTEPIITRAVGRADWIRTDLTSSLNAPAFVAANVLSP					
	180	190	200	210	220	230
	250	260	270	280	290	300
SmW_R_AA	AEWGDDEDDDEIFFFTETSRVLSYERIKVPRVARVCAQDLGGRKTLQQRWTTFLKADL					
	: . . . . . : . . . . . : . . . . . : . . . . . : . . . . . : . . . . .					
SmW_H_ORF.aa	AEWGDDEDDDEIFFFTETSRVLSYERIKVPRVARVCAQDLGGRKTLQQRWTTFLKADL					
	240	250	260	270	280	290
	310	320	330	340	350	360
SmW_R_AA	LCPGPEHGRASGVLDQAMAEPRPQAGTPIFYGIFSSQWEGAAISAVCAFRPQDIRAVLN					
	: . . . . . : . . . . . : . . . . . : . . . . . : . . . . . : . . . . .					
SmW_H_ORF.aa	LCPGPEHGRASSYLQDVAVLRPELGAGTPIFYGIFSSQWEGATISAVCAFRPQDIRTVLN					
	300	310	320	330	340	350
	370	380	390	400	410	420
SmW_R_AA	GPFRELKHDNRGLPVMNDVPPQPRPGECIANNMQLQQFGSSLSLPDRVLTFIROHPLND					
	: . . . . . : . . . . . : . . . . . : . . . . . : . . . . . : . . . . .					
SmW_H_ORF.aa	GPFRELKHDNRGLPVVDNDVPPQPRPGECITNNMQLRHFGSSLSLPDRVLTFIROHPLND					

Group of human

	360	370	380	390	400	410
	430	440	450	460	470	480
SmW_R_AA	RPVFPADGRPLLVTDTAYLRVVAHRVTSLSQKEYDVL	YLGTE	DGHLHRAVR	I	GAQLSVL	
	.....					
SmW_H_ORF. aa	RPVFPADGHPPLLVTDTAYLRVVAHRVTSLSQKEYDVL	YLGTE	DGHLHRAVR	I	GAQLSVL	
	420	430	440	450	460	470
	490	500	510	520	530	540
SmW_R_AA	EDLALFPEPQPVESMKLYHDMLLVGSHTV	TQVNTS	NCGR	LQSCSEC	I	LAQDPVCAWSFR
	.....					
SmW_H_ORF. aa	EDLALFPEPQPVENIKLYHSMLLVGSRTV	TQVNTT	NCGR	LQSCSEC	I	LAQDPVCAWSFR
	480	490	500	510	520	530
	550	560	570	580	590	600
SmW_R_AA	LDACVAHAGEHRGMVQDI	ESADVSS	LCPK	EPGEHPV	FEVPVATVGHV	VLPCSPSSAWAS
	.....					
SmW_H_ORF. aa	LDECVAHAGEHRGLVQDI	ESADVSS	LCPK	EPGERPV	FEVPVATAAHV	VLPCSPSSAWAS
	540	550	560	570	580	590
	610	620	630	640	650	660
SmW_R_AA	CVVHQPSGVTALTPRRDGL	EVVTPG	AMGAYACE	CQEGGAARV	VAAYSLV	WGSQRGPSNR
	.....					
SmW_H_ORF. aa	CVVHQPSGVTALTPRRDGL	EVVTPG	AMGAYACE	CQEGGAARV	VAAYSLV	WGSQRDAPSR
	600	610	620	630	640	650
	670	680	690	700	710	720
SmW_R_AA	AHTVWAGLVGFLGVL	AASLTLL	I	GRRQRRRQRELL	ARDKVGLD	LGA
	PPSGTTSYSQ					
	... X: ... ..					
SmW_H_ORF. aa	AHT-VGAGLAGF	LGILAASLTLL	I	GRRQRRRQRELL	ARDKVGLD	LGA
	PPSGTTSYSQ					
	660	670	680	690	700	710
	730	740	750	760	770	
SmW_R_AA	DPPSPSPEDERLPLAL	GKRGSG	FGGFP	FLDSC	PSPAH	IRLTGAPLATCDETSI
	.....X					
SmW_H_ORF. aa	DPPSPSPEDERLPLAL	AKRGSG	FGGFP	FLDPC	PSPAH	IRLTGAPLATCDETSI
	720	730	740	750	760	770

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Appendix 4

encoding Semaphorin W protein which comprises the amino acid sequence shown in SEQ ID NO: 3, or (b) a gene encoding a protein which comprises an amino acid sequence wherein one or more amino acids are deleted, substituted and/or added in the above amino acid sequence shown in SEQ ID NO: 3 and which protein inhibits neurite outgrowth. The 2nd embodiment of the present invention is (c) a gene comprising Semaphorin W DNA which comprises the base sequence shown in SEQ ID NO: 1 or 2, or (d) a gene comprising DNA which hybridizes under stringent conditions to the above DNA comprising the base sequence shown in SEQ ID NO: 1 or 2 and which encodes a protein inhibiting neurite outgrowth, or (e) a gene comprising DNA of the above item (d) which comprises the base sequence shown in SEQ ID NO: 4 or 5 and/or the base sequence shown in SEQ ID NO: 10. These genes are explained below in order.

1) Gene Encoding Semaphorin W (Semaphorin W Gene)

Of the above-mentioned genes, "a gene encoding Semaphorin W protein which comprises the amino acid sequence shown in SEQ ID NO: 3" or "a gene comprising Semaphorin W DNA which comprises the base sequence shown in SEQ ID NO: 1 or 2" is a gene encoding rat Semaphorin W. Among these genes, the DNA comprising the base sequence shown in SEQ ID NO: 2 corresponds to the open reading frame of the rat Semaphorin W gene shown in SEQ ID NO: 1. These genes may be cloned, as described in Example 3, by screening a cDNA library derived from rat CNS tissues or a genomic library using a probe (for example, a DNA probe having the base sequence shown in SEQ ID NO: 7) prepared on the basis of the sequence of "T09073" found in EST database. Particular techniques